



# Stationary Drumcycle

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## TOOLS:

- [Drill bit \(1\)](#)
- [Drill bit \(1\)](#)
- [Drill bit \(1\)](#)
- [Drill bit \(1\)](#)
- [Hammer \(1\)](#)
- [Jigsaw \(1\)](#)  
*[with blade suitable for MDF](#)*
- [Marker \(1\)](#)
- [Pencil \(1\)](#)  
*[for taking rubbing](#)*
- [Phillips head screwdriver \(1\)](#)
- [Rasp \(1\)](#)
- [Scissors \(1\)](#)
- [Washer \(1\)](#)  
*[for use as a corner radius template](#)*
- [Wrench \(1\)](#)
- [hand electric drill \(1\)](#)



## PARTS:

- [Digital drum kit \(1\)](#)  
*[such as Yamaha DD55](#)*
- [Stationary bicycle \(1\)](#)  
*[such as Schwinn 120](#)*
- [MDF \(2x4'\)](#)
- [Bolt \(4\)](#)
- [Bolt \(4\)](#)
- [Washer \(4\)](#)
- [T-nut \(4\)](#)
- [Nut \(8\)](#)  
*[aka "nylock"](#)*
- [Paper \(1\)](#)
- [Tape \(12"\)](#)
- [Spray paint \(1\)](#)  
*[or to your preference](#)*

## SUMMARY

A recent toe injury kept me from running for a few weeks, and I bought a stationary bike to keep in shape while recovering. The exercise bike has a lot to recommend it: it's low-impact, safe, easy to scale up for harder workouts, and indoors out of the weather.

It's also as boring as watching paint dry.

I tried a lot of tricks to distract myself from staring at the clock while riding--reading, watching movies, playing video games. None of it really worked, for me. Then, one day I caught myself drumming on the handlebars in time to the movement of the pedals, and an idea occurred to me. I bought a refurbished Yamaha DD55 tabletop digital drumset and mounted it in place of the bike's (fairly useless) readout panel.

At the risk of hyperbole, the result has been almost miraculous. Before, riding the bike was a chore and I would count down the minutes and seconds until I could stop; now, I am often taken by surprise when my workout timer goes off, and I'll actually keep riding for a few more minutes so I can finish working out whatever rhythm I am playing. I look forward to riding the bike, and find myself jumping on it and riding when I feel restless or need to relax.

### Step 1 — Open the drum controller case



- If you're not using a DD-55, the exact method for opening the case may vary. The general point is to get the underside of the case separated from the top and interior electronics so it can be drilled without damaging them.
- Turn the drum controller over and remove the case screws with a screwdriver.
- Separate the front and back of the case. Detach the plug connecting the battery compartment to the PCB, and set the front of the case and the electronics aside.



## Step 2 — Drill and mark case mounting holes



- Drill a small pilot hole in the center of each of the four rubber feet on the underside of the case. Step drill all four holes up to 3/16", and then once again up to 1/4".
- Turn the case right side up and set it on a piece of 1/2" MDF. Put the tip of a permanent marker through each of the holes you just drilled to mark their corresponding locations on the MDF.
- Pass a 1/4-20 x 1.5" bolt through each of the drilled holes in the case. The heads of the bolts should be on the *inside* of the case, with the threads protruding out the bottom.
- Start a 1/4-20 nylock nut onto each of the exposed threaded shafts with your fingers.

## Step 3 — Install case bolts and reassemble



- Use a screwdriver inside the case, and a box-end wrench outside, to tighten the nylocks down on the bolts until they are secure against the underside of the case, with no "rattle."
- Reunite the top and bottom halves of the case. Reinstall the plug from the battery compartment to the PCB.
- Reinstall the case screws using a Phillips head screwdriver or other appropriate tool.



## Step 4 — Lay out MDF platform



- Center a 1.5-2" diameter fender washer over each of the marks on the MDF panel. Trace around its circumference with a pen or a pencil.
- Use a straightedge and a pen or pencil to connect the outside edges of the four circles you just drew with tangent lines.

## Step 5 — Remove bike readout panel



- Loosen the handlebar clamp and rotate the handlebars down and out of the way.
- Detach any plugs connecting the readout panel to the bike, and remove any mounting screws holding it in place.
- Slide the readout panel off the mounting plate.
- Put the readout panel in a ziplock bag with any screws or other mounting hardware you removed. Store the bag in a cool, dry, secure location away from direct sunlight.
- At a later time, you may decide that you want to restore the bike to its factory condition, or mount the control panel alongside the drum machine.

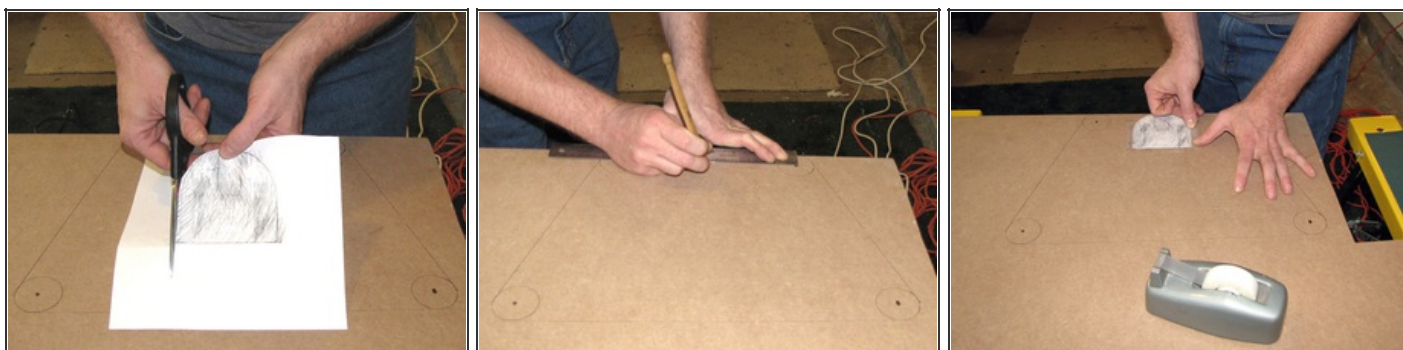


## Step 6 — Make a mounting plate template



- Fold a piece of printer paper over the exposed mounting plate, as shown.
- Use a pencil or crayon to make a rubbing of the mounting plate, focusing on the edges and the locations of any holes.

## Step 7 — Attach template to MDF

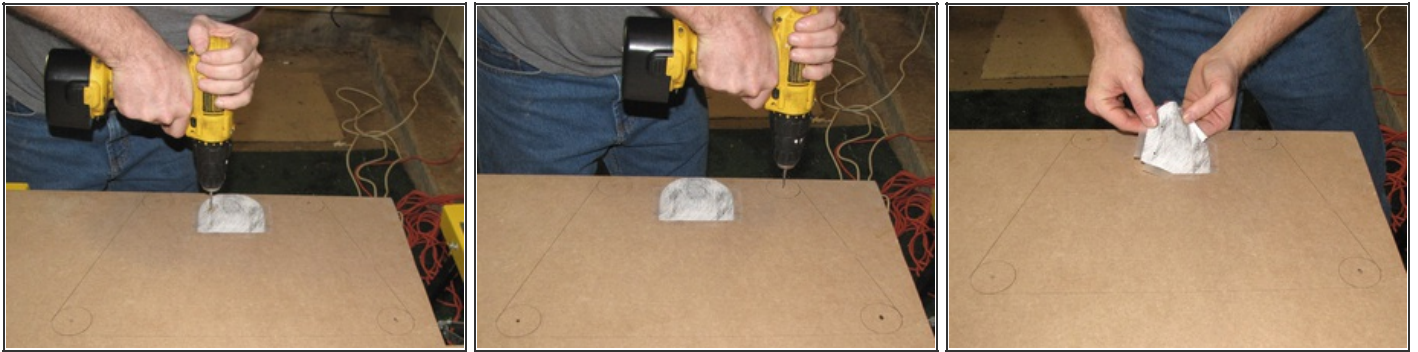


- Cut out the template using a pair of scissors.
- Use a ruler and a pencil to measure and mark the center of the lower edge of the mounting board outline.
- Position the template along the lower edge of the MDF platform outline, centered on the mark.
- If you want to be precise, use a ruler to verify that the template is centered at both top and bottom edges, and otherwise correctly aligned with the edges of the board. I was content to eyeball it, and it worked fine.
- Tape the template in position on the MDF with Scotch tape all around the edge.



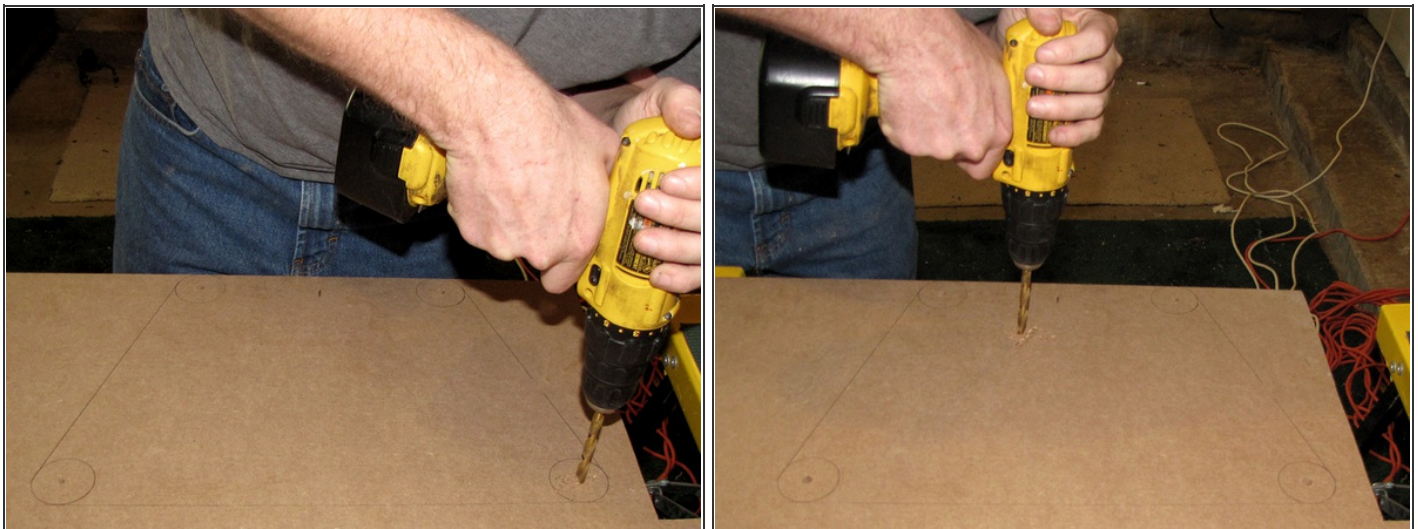


## Step 8 — Drill pilot holes



- Chuck a 1/8" brad-point bit into your drill and drill pilot holes centered over the location of each mounting hole indicated in the template rubbing. Drill all the way through the MDF.
- Also drill pilot holes through each of the four case mounting bolt locations in the corners of the platform.
- When all the pilot holes are drilled, remove and discard the paper template.

## Step 9 — Drill full size holes



- Step up to a 5/16" twist drill and bore out each of the pilot holes to 5/16" diameter.
- 5/16" should be a close fit for the barrels of your T-nuts, but a very loose one for the shafts of the mounting bolts.



## Step 10 — Cut out MDF platform



- Use an electric jigsaw to cut out around the marked perimeter of the mounting platform. Don't round off the corners, yet; just make four straight cuts.
- Once the mounting platform is free from the surrounding stock, round off each of the four corners, to the marked radius, using a series of ever-shorter **straight** cuts.
- Resist the temptation to try to follow the radius of the corners with the blade, as this can cause the blade to deflect from perpendicular and lead to "banked" corners.



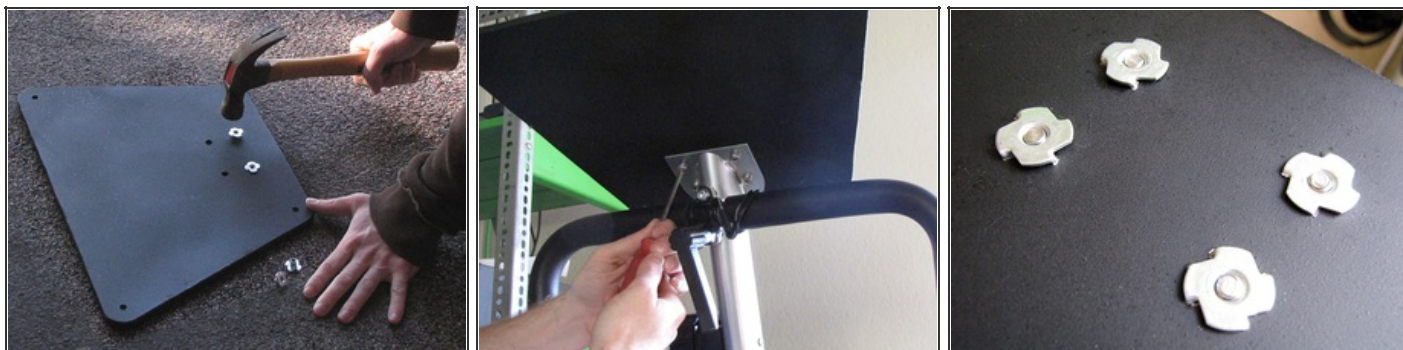
## Step 11 — Finish MDF platform



- Round off the corners to smooth radii using vertical strokes of a file or fine rasp.
- Round over the long edges of the board using the same tool. No need to overdo it; the idea is just to break the sharp edges for comfort, safety, and aesthetics. A 1/16" radius is plenty.
- Spray-paint the entire platform with a couple of coats of flat black primer. Allow the paint to dry overnight before proceeding.



## Step 12 — Install platform on bike



- Insert a 1/4-20 T-nut into each of the plate mounting holes, as shown, and pound the tines into the surface with a hammer.
- Position the platform over the bike's mounting plate, aligning the templated holes in each. Insert each of four 1/4-20 x 3/4" bolts through a split washer, then through one of the holes in the underside of the mounting plate, then through one of the corresponding holes in the MDF platform.
- Tighten each bolt into the corresponding T-nut, compressing the split washers, until the MDF platform is securely mounted.

## Step 13 — Install drum machine



- Lower the drum machine into position over the MDF platform, aligning the bolts protruding from the underside of the case with the corresponding holes in the platform.
- Adjust the alignment until all four bolts are protruding through the underside of the MDF platform, and then start a 1/4" nylock onto each one with your fingers.
- Use a box-end wrench to tighten each nylock down until it is secure against the underside of the MDF platform and the drum machine is secure against the top.



## Step 14 — Finishing touches.



- Rotate the handlebars back up into a comfortable position and secure them with the locking handle.
- Plug the drum machine's DC power supply into its connector. Plug the power supply into a suitable AC power outlet.
- Be careful to route the cord between the drum machine and the wall along or under the bicycle frame in such a way that it cannot become entangled in the rotating pedals. Use zip ties, velcro strips, and/or tape if necessary.



To use the drumcycle, start with easy settings and work up. Set the pedal resistance, then turn on the digital drum kit and start the click track. Adjust the click tempo to 110 or 120 beats per minute to start.

Start your workout timer, or just look at a nearby clock and note what time you want to stop.

Now operate the pedals in time to the click: Right, left, right, left, as if you were marching.

Once you're pedaling in time, start using your hands on the pads. Do eighth notes on a cymbal with your right hand, and strike the snare drum every time your left foot goes down. If you've ever played the drummer in Rock Band, you have the basic skills you need to start riffing.

Mess around with the different drumkits and sounds. And always keep your feet moving in time to the beat. Develop a pattern and work it until you can keep good time with it, hands and feet and click track altogether. Then start embellishing, changing it up, and generally jamming out.

Before you know it, your workout will be over. But you may not be ready to stop.

This document was last generated on 2012-11-03 03:49:44 AM.